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EXAMINER
CHANG, JON CARLTON

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20-22* is/are allowed.

6)☒ Claim(s) *1-19 and 23-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   Figures 1 and 2 should be designated by a legend such as --Prior Art-- because

only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Specification

2.   The disclosure is objected to because of the following informalities: the various

docket numbers on pages 2 and 3 of the specification should be replaced with

application serial numbers.

        Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

5.   Claims 1-5, 9-11, 13, 18-19 and 23-28 are rejected under 35 U.S.C. 103(a) as

being unpatentable over the combination of U.S. Patent 5,546,538 to Cobbley et al.

(hereinafter referred to as "Cobbley") and U.S. Patent Application 20040126017 to Seni

et al. (hereinafter "Seni").

6.   As to claim 1, Cobbley discloses a method of providing computer-based

recognition of natural language data, comprising the steps of:

        generating natural language data using an input device (Fig.1, element 20; Fig.2,

element 20; column 3, lines 20-21; column 5, lines 24-30; the natural language data is

the handwriting data); and,

        transmitting the natural language data to a server via a network (column 4, lines

45-47; Fig.2, element 35; column 4, lines 48-49; column 5, line 61 to column 6, line 1);

        wherein, the server is programmed and configured to process the natural

language data using a recognizer residing on the server (column 6, lines 26-30) to

produce intermediate format data (column 6, lines 30-34; the intermediate format data is

encoded text), and is further programmed and configured to transmit the intermediate format data to an application (Fig.7, element 307; column 7, lines 5-15), and

further wherein, the intermediate format data is decoded into computer-readable format data (column 3, lines 30-32; Fig.1, element 21; column 5, lines 38-43; Fig.4a, element 103, steps 2 and 3; the device 20 inherently decodes the encoded text since it receives encoded text and displays the text 21).

Cobbley does not disclose decoding using context information associated with the application. However, this is well known in the art. For example, Seni, in the same environment, discloses using "grammars" which provide a context information when decoding text ([0023], lines 8-13; [0034]; [0058], lines 1-3; [0066]). Seni's states that context permits conversion of handwritten input into text strings that are pertinent or relevant to the circumstances or surroundings in which an expected text string is being used (last sentence of [0066]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Cobbley according to Seni, in order to obtain this advantage.

7.   As to claim 2, Cobbley discloses a method for computer-based recognition of natural language data, the method implemented on a network (Fig.3; LAND 42) and comprising the steps of:

obtaining natural language data using an input device (Fig.1, element 20; Fig.2, element 20; column 3, lines 20-21; column 5, lines 24-30; the natural language data is the handwriting data);

receiving the natural language data on a server via the network (column 6, lines
26-29);

processing the natural language data using a recognizer residing on the server to
produce intermediate format data (column 6, lines 30-34; the intermediate format data is
encoded text);

transmitting the intermediate format data to an application (Fig.7, element 307;
column 7, lines 5-15); and,

decoding the intermediate format data into computer-readable format data
(column 3, lines 30-32; Fig.1, element 21; column 5, lines 38-43; Fig.4a, element 103,
steps 2 and 3; the device 20 inherently decodes the encoded text since it receives
encoded text and displays the text 21).

Cobbley does not disclose decoding using context information associated with
the application. However, this is well known in the art. For example, Seni, in the same
environment, discloses using "grammars" which provide a context information when
decoding text ([0023], lines 8-13; [0034]; [0058], lines 1-3; [0066]). Seni's states that
context permits conversion of handwritten input into text strings that are pertinent or
relevant to the circumstances or surroundings in which an expected text string is being
used (last sentence of [0066]). Therefore, it would have been obvious to one of
ordinary skill in the art to modify Cobbley according to Seni, in order to obtain this
advantage.

8.   As to claim 3, Cobbley further discloses the method as claimed in claim 1 or 2,

wherein the natural language data is digital ink (in Fig.1, the result of writing is digital

ink) or speech (column 8, lines 24-32). Seni also teaches digital ink ([0023], lines 6-7).

9.   Regarding claim 4, Cobbley discloses the method as claimed in claim 1 or 2, but

does not disclose wherein processing the natural language data includes one or more

of: normalizing the data; segmenting the data; and classifying the data. However, this is

well known in the art as evidenced by Seni ([0024], lines 6-11). It would have been

obvious to one of ordinary skill in the art to modify Cobbley according to Seni to employ

classifying of the data in order to improve conversion to text.

10.   Regarding claim 5, Cobbley discloses the method as claimed in claim 1 or 2,

wherein the recognizer is implemented using software or hardware (column 6, lines 26-

34; the recognizer is essentially software running on hardware).

11.   With regard to claim 9, Cobbley discloses the method as claimed in claim 1 or 2,

wherein the natural language data is derived from image processing (Fig. 1; the

handwriting capture qualifies as image processing).

12.   As to claim 10, Cobbley discloses the method as claimed in claim 1 or 2, but

does not disclose wherein the application is remote to both the input device and the

server. However, Seni teaches forwarding to any other computer program or

application ([0023], last sentence), and another computer or computer program ([0028],

last sentence). Seni also shows another computer on the network (Fig.1), which is

remote from the other two. It would have been obvious to one of ordinary skill in the art

to modify Cobbley's invention to have an application that is remote to both the input

device and the server based on the teachings of Seni because this would make more

effective use of distributed processing.

13.   Regarding claim 11, Cobbley discloses the method as claimed in claim 1 or 2,

wherein the application resides on the server (this could read on any number of things

in Cobbley. For example, the application could be that which operates the interface of

the computational server with the LAN (Fig.2).

14.   Regarding claim 13, Cobbley discloses the method as claimed in claim 1 or 2,

wherein the recognizer can be trained for a specific user (column 6, lines 48-61).

15.   As to claim 18, Cobbley discloses a method for computer-based recognition of

natural language data, comprising the steps of:

        receiving natural language data at a server from a remote input device (column

6, lines 26-29; Fig.1, element 20; Fig.2, element 20; column 3, lines 20-21; column 5,

lines 24-30; the natural language data is the handwriting data);

        processing the natural language data using a recognizer residing on the server to

produce intermediate format data (column 6, lines 30-34; the intermediate format data is

encoded text); and,

        transmitting the intermediate format data to an application (Fig.7, element 307;

column 7, lines 5-15);

        wherein, the application is programmed and configured to decode the

intermediate format data into computer-readable format data (column 3, lines 30-32;

Fig.1, element 21; column 5, lines 38-43; Fig.4a, element 103, steps 2 and 3; the device

20 inherently decodes the encoded text since it receives encoded text and displays the text 21).

Cobbley does not disclose decoding using context information associated with the application. However, this is well known in the art. For example, Seni, in the same environment, discloses using "grammars" which provide a context information when decoding text ([0023], lines 8-13; [0034]; [0058], lines 1-3; [0066]). Seni's states that context permits conversion of handwritten input into text strings that are pertinent or relevant to the circumstances or surroundings in which an expected text string is being used (last sentence of [0066]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Cobbley according to Seni, in order to obtain this advantage.

16.   Claim 19 is similar to claim 18. The discussion provide above for claim 18 is therefore applicable to claim 19.

17.   Regarding claim 23, Cobbley discloses a system for computer-based recognition of natural language data, the system implemented on a network and comprising:

a server to receive natural language data generated by an input device via the network (column 6, lines 26-29); and,

a recognizer residing on the server to process the natural language data to produce intermediate format data (column 6, lines 30-34; the intermediate format data is encoded text); wherein,

an application receives the intermediate format data and decodes the intermediate format data into computer-readable format data (column 3, lines 30-32;

Fig.1, element 21; column 5, lines 38-43; Fig.4a, element 103, steps 2 and 3; the application running on the device 20 inherently decodes the encoded text since it receives encoded text and displays the text 21).

Cobbley does not disclose decoding using context information associated with the application. However, this is well known in the art. For example, Seni, in the same environment, discloses using "grammars" which provide a context information when decoding text ([0023], lines 8-13; [0034]; [0058], lines 1-3; [0066]). Seni's states that context permits conversion of handwritten input into text strings that are pertinent or relevant to the circumstances or surroundings in which an expected text string is being used (last sentence of [0066]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Cobbley according to Seni, in order to obtain this advantage.

18.   As to claim 24, Cobbley discloses a system for computer-based recognition of natural language data, the system implemented on a network and comprising:

an input device to generate natural language data (Fig.1, element 20; Fig.2, element 20; column 3, lines 20-21; column 5, lines 24-30; the natural language data is the handwriting data);

a server to receive the natural language data via the network (column 6, lines 26-29);

a recognizer residing on the server to process the natural language data to produce intermediate format data (column 6, lines 30-34; the intermediate format data is encoded text); and,

an application to receive the intermediate format data and to decode the

intermediate format data into computer-readable format data (column 3, lines 30-32;

Fig.1, element 21; column 5, lines 38-43; Fig.4a, element 103, steps 2 and 3; the

application running on the device 20 inherently decodes the encoded text since it

receives encoded text and displays the text 21).

Cobbley does not disclose decoding using context information associated with

the application. However, this is well known in the art. For example, Seni, in the same

environment, discloses using "grammars" which provide a context information when

decoding text ([0023], lines 8-13; [0034]; [0058], lines 1-3; [0066]). Seni's states that

context permits conversion of handwritten input into text strings that are pertinent or

relevant to the circumstances or surroundings in which an expected text string is being

used (last sentence of [0066]). Therefore, it would have been obvious to one of

ordinary skill in the art to modify Cobbley according to Seni, in order to obtain this

advantage.

19.   As to claim 25, Cobbley discloses the system as claimed in claim 23 or 24,

wherein the input device is a pen-based input device (note Fig.1, element 25).

20.   As to claim 26, Cobbley discloses the system as claimed in claim 23 or 24,

wherein the input device includes a microphone (column 8, line 28).

21.   As to claim 27, Cobbley discloses the system as claimed in claim 23 or 24, but

does not disclose wherein the intermediate format data is transmitted to more than one

application. However, Seni teaches forwarding to any other computer program or

application ([0023], last sentence), and another computer or computer program ([0028],

last sentence). It would have been obvious to one of ordinary skill in the art to transmit the intermediate format data of Cobbley to more than one application based on the teachings of Seni because this would permit multiple users or devices to utilize the system.

22.   Regarding claim 28, Cobbley discloses the system as claimed in claim 23 or 24, wherein the application initiates the processing of the natural language data (this could be interpreted in a number of ways. For example this reads on Cobbley's input device accepting handwriting as described in column 5, lines 24-30. As another example, this could read on Cobbley's device passing the handwriting to the communication subsystem as described in column 5, lines 35-40).

23.   Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cobbley, Seni and U.S. Patent 5,455,872 to Bradley.

24.   Regarding claim 29, neither Cobbley nor Seni disclose that the system includes a recognizer manager to select a recognizer from a plurality of recognizers. However, this is old and well known in the art. For example, Bradley discloses a system for selecting a recognizer from a plurality of recognizers (column 2, lines 36-38). This improves and enhances recognition, as explained by Bradley (column 2, lines 18-25). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Cobbley-Seni system according to Bradley.

25.   Claims 6-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over the combination of Cobbley, Seni and U.S. Patent 7,336,827 to Geiger et al.

(hereinafter referred to as "Geiger").

26.   Regarding claim 6, Cobbley and Seni disclose the method as claimed in claim 1

or 2, however neither discloses wherein the intermediate format data is a Directed

Acyclic Graph (DAG) data structure. However, this is well known in the art. For

example, Geiger discloses a Directed Acyclic Graph data structure (column 18, line 63

to column 19, line 12). Employing the DAG data structure as taught by Geiger would

have provided improved recognition processing. Therefore, it would have been obvious

to one of ordinary skill in the art to modify the Cobbley-Seni system according to Geiger.

27.   Regarding claim 7, Geiger further discloses wherein the DAG data structure is a

matrix containing the processing results of segments of natural language data (column

19, lines 4-12).

28.   Regarding 8, Geiger does not disclose wherein the intermediate format data

includes segmented time-series classifier data. However, this is well known in the art

as evidenced by Geiger. Geiger teaches the capturing handwritten characters as

coordinate information and time information (column 7, lines 3-5). The data is

segmenting (column 12, lines 3-34). Further, the characters are classified (column 4,

lines 61-62). It would have been obvious to one ordinary skill in the art to modify the

Cobbley-Seni method according to Geiger because this would have permitted improved

recognition of characters.

29.   As to claim 12, Seni does not disclose wherein the context information is a user

dictionary. However, this is well known in the art. For example, Geiger teaches a user

dictionary (column 21, lines 48-52). Use of a dictionary would improve character

recognition, and therefore it would have been obvious to one of ordinary skill in the art

to modify Seni according to Geiger.

30.   Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the combination of Cobbley, Seni and U.S. Patent 7,289,685 to Wolff et al. (hereinafter

referred to as "Wolff").

31.   As to claim 14, neither Cobbley nor Seni disclose wherein the input device is

associated with a paper-based interface provided with coded markings. However, this

is well known in the art. For example, Wolff teaches this (Fig.2; column 3, lines 45-58;

column 4, lines 30-37 and 48-54). Employing the paper-based interface taught by Wolff

to the Cobbley-Seni method would increase versatility, in particular with Seni's use of

forms. Therefore it would have been obvious to modify the Cobbley-Seni method

according to Wolff.

32.   As to claim 15, Wolff does not teach wherein the coded markings are a pattern of

infrared markings. However, the Examiner takes official notice that coded markings are

well known in the art. It would have been obvious to one or ordinary skill in the art to

utilize such markings because it would provide a "cleaner" and more user-friendly form.

33.   Regarding claim 16, none of Cobbley, Seni and Wolff disclose an optically

imaging pen as an input device. However, the Examiner takes official notice that

optically imaging pens are well known in the art. It would have been obvious to one or

ordinary skill in the art to utilize an optically imaging pen because it would allow

improved portability when using paper-based forms.

34.   As to claim 17, Wolff further teaches wherein each paper-based interface is

uniquely identified and stored on a network server (column 6, lines 63-64). It would

have been obvious to implement this feature of Wolff in order to accommodate any

number of forms for a variety of applications.

Allowable Subject Matter

35.   Claims 20-22 are allowed.

36.   The following is a statement of reasons for the indication of allowable subject

matter: Claim 20 recites "receiving in a server, indicating data…regarding…and at least

one of a position and a movement of the sensing device relative to the paper-based

document." The claim goes on to require "processing the indicating data...to produce

intermediate format data," "transmitting the intermediate format data to an application,"

and "wherein the application decodes the intermediate format data into computer

readable format using context information associated with the paper-based document."

While the cited prior art teach various aspects of the claim, they do not teach the above

mentioned features. Cobbley and Seni variously teach intermediate format data,

context information, a server, etc., as described in previous rejections. Wolff teaches a

paper-based document. However, none of these references teach the invention of

claim 20. Claim 21 recites similar features, and is therefore also allowable.

Citation of Relevant Prior Art

37.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

U.S. Patent 20050013487 to Clary et al. is cited for disclosing a system which

captures handwriting on one computing device and transfers the handwriting to another

computing device for recognition.

U.S. Patent 6,456,740 to Carini et al. is cited for disclosing a system for

identifying form type in a handwriting recognition based form completion system.

U.S. Patent 6,343,148 to Nagy discloses a system which utilizes a server on a

network to provide recognition services for handwriting input into a PDA. The invention

is similar to that provided by Cobbley and Seni.

U.S. Patent 5982,928 to Shimada et al. is cited for disclosing a system which

utilizes dictionaries for performing character recognition.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JON CHANG whose telephone number is (571)272-

7417. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a
USPTO Customer Service Representative or access to the automated information
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jon Chang /
Primary Examiner, Art Unit 2624